

**ABSTRACT OF THE DISCLOSURE**

A system and method for modeling the effect of a molecular contaminant film on performance of an optical system is disclosed. A mass of material outgassed from materials of the optical system is correlated to spectrum of outgassed products. The spectrum of outgassed products is normalized, and an aggregate molecular contaminant film thickness is predicted from each material. The absorbance spectrum of the aggregate molecular contaminant film is derived, and the derived absorbance spectrum of the aggregate contaminant film is convolved with an optical system instrument function. A plot of at least one transmission band as a function of source temperature is performed to determine the degradation in performance of the optical system.